ATTACHMENT J-2

NOAA SWATH
Coastal Mapping Vessel (CMV)

CONTRACT DATA REQUIREMENTS LIST (CDRL)

Revision 01

August 27, 2003

United States Department of Commerce
National Oceanic and Atmospheric Administration

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CONTRACT DATA REQUIREMENTS LIST

FOREWORD

The Contract Data Requirements List identifies data requirements in support of the NOAA SWATH Coastal Mapping Vessel (CMV) acquisition. All submittals must be prepared in the contractor's format and must be clear, legible, and typed where appropriate. All calculations and design data must be provided in metric standard units, to the maximum extent practical, except where existing documentation is in the inch-pound system.

The contractor is encouraged to eliminate any data duplicated among data items. Consequently, schedules, reports, meeting minutes and reviews are to be consolidated to the maximum extent possible.

The Contractor shall provide all deliverables required by Exhibit A in an electronic format via email. The Government will review and approve this information electronically, as appropriate. Electronic deliverables other than drawings must be in a file format compatible with the ***Microsoft Office*** suite of programs. Computer-aided drawings must be in a format compatible with AutoCAD.

1. ELECTRONIC INFORMATION MANAGEMENT SYSTEM

The Contractor shall upload all deliverables required by Exhibits B through E to the electronic information management system called for in Section G-4 of the RFP.

The contractor must update data and products in digital form, to reflect current configuration and program status, with updates submitted as required by design development. The Government will review and approve this information electronically, as appropriate. Electronic deliverables other than drawings must be in a file format compatible with the ***Microsoft Office*** suite of programs. Computer-aided drawings must be in a format compatible with AutoCAD. Technical manuals, drawings and reports as noted in the following exhibits, shall also be provided in CD ROM format as a final deliverable.

2. DATA SUBMISSION

All submittals, including drawings, reports and machine-produced listings must be provided with the following information:

Contractor's serial number and date

Applicable hull registry number(s) and Contractor's hull number(s)

The contract number, data item number, and data item title. When multiple submissions are made under the same data item (such as drawings, purchase orders, or test reports), a subtitle must be included to further identify the content.

A list of all enclosures being submitted in the data package.

A revision letter and date must be included to reflect the revision of any previously submitted document. The cover sheet must provide a brief explanation of the reason for the change or a more detailed discussion must be included in the content of the submittal.

Submittals requiring approval must state: "This document requires Government approval." If approval has been granted, the approved version must state: "This document has been reviewed and approved by the Government."

Submittals for a specific hull must state: "This is a final submission (if applicable) for Hull ___." Incremental submittals and documents regarding recurring meetings or events must identify the specific increment/event date (if not otherwise identified in the subtitle).

Distribution and quantity of copies being sent

3. SUBMISSION SCHEDULE

The Contractor must maintain scheduling data relating to the submission requirements of data items and must ensure that actual deliveries are made on or before specified due dates. Submission criteria are usually based on key events that are known to both the Contractor and to Government personnel (such as contract award). The contractor must alert the Contracting Officer and ConRep via email that a data item is available for review.

4. QUALITY CONTROL

The Contractor must maintain internal quality control to ensure submittals are complete and adequate and should not rely on Government review comments to ensure the technical accuracy of data.

The approval time period for Government review, identified in the data requirements list, commences at receipt of the data by the Government agency responsible for providing approval.

In most cases, approval will be granted subject to resolution of issues raised by review comments. If all issues can be successfully resolved, the Contractor must correct and resubmit the data within 30 days after receipt of the comments. In the event the Contractor disagrees with the intent of the review comments or is unable to comply with and/or resolve issues raised, the Contractor must submit correspondence explaining the disagreement and propose suitable alternatives with supporting rationale.

5. EXHIBITS

The following tables and exhibits summarize the required data deliverables:

Index of Preliminary Design Deliverables

Document Number	Reference	Document Title
A001	Section C and SOR Section 070g	Feasibility Design Presentation
A002	Section C, Attachment J-4, and SOR Section 070g	Preliminary Design Report
A003	Attachment J-4, Section 1.3	General Arrangement Drawings
A004	Attachment J-4, Section 1.4	Hull Form
A005	Attachment J-4, Section 1.6	Weight and Center of Gravity Estimate
A006	Attachment J-4, Section 1.7	Trim & Stability / Loading Conditions
A007	Attachment J-4, Section 1.8.1	Speed / Power Analysis
A008	Attachment J-4, Section 1.8.2	Seakeeping
A009	Attachment J-4, Section 1.8.3	Maneuvering Assessment
A010	Attachment J-4, Section 2.1	Hull Structural Design Report / Midship Section Drawing
A011	Attachment J-4, Section 2.2 & 2.3	Propulsion and Electric Plant
A012	Attachment J-4, Section 2.5	Ship Auxiliary Systems
A013	Attachment J-4, Section 2.7	Mission Systems Arrangements
A014	Attachment J-4, Section 1.9	Noise and Vibration Analysis
A015	Section L	Contract Design Phase Plan / Schedule
A016	Section C	Revised SOR
A017	Section C	Design Review Agendas and Minutes
A018	Section L and H-14	Detailed Cost Estimate for CLIN 0003 and 0004
A019	Section H-11	Offer Guarantee

Index of Contract Design Deliverables

Document Number	Reference	Document Title
B001	Section C and SOR Section 070g	Critical Design Review Presentation
B002	SOR and Attach. J-5	General Arrangement Drawings
B003	Section C	Revised SOR
B004	SOR Section 042e	Correspondence
B005	Section C	Regulatory Body Correspondence
B006	Section C	Design Review Conference / Meeting Agendas and Minutes
B007	SOR Section 042f	Contract Design Phase Schedules
B008	SOR Section 045d	Preliminary Launching Plan
B009	SOR Section 070	Structural Classification Review
B010	SOR Section 070c	Endurance Fuel Calculations
B011	SOR Section 070d	Maneuvering Performance Prediction
B012	SOR Section 070e	Seakeeping Analysis Report
B013	SOR Section 070i	Dynamic Load Factors Report
B014	SOR Section 070c	Hydrodynamic Model Test Plan
B015	SOR Section 070c	Hydrodynamic Model Test Reports
B016		Speed / Power Analysis
B017	SOR Section 073b	Airborne Noise Analysis Report
B018	SOR Section 073d	Hull Vibration Analysis Report
B019	SOR Section 073d	Shaft Vibration Analysis Report
B020	SOR Section 073c	Sonar Noise Analysis Report
B021	SOR Section 079	Subdivision Analysis
B022	SOR Section 079	Intact Stability Analysis
B023	SOR Section 079	Damage Stability Analysis
B024	SOR Section 081	Equipment Removal Routes Plan
B025	SOR Section 085	Contract Design Drawings
B026	SOR Section 079, SOR Section 096	Tank Capacity Table Data
B027	SOR Section 085	Lines and Offsets
B028	SOR Section 085	Machinery Arrangement Drawings
B029	SOR Section 096	Periodic Contract Design Weight Estimate
B030	SOR Section 096	Final Contract Design Weight Estimate (CDWE)
B031	SOR Section 096	Weight Control Plan
B032	SOR Section 200	SSV-related technical documentation
B033	SOR Section 243	Shaft Alignment Analysis
B034	SOR Section 300	Electric Power Load Analysis (EPLA)
B035	SOR Section 491	Government Mission Electronics Equipment Interface Control Documentation
B036	SOR Sections 070f, 491, 691	Charting Laboratory Arrangement
B037	SOR Section 512	HVAC Calculations
B038	SOR Sections 200 and 500	Fluid Systems Calculations
B039	SOR Section 591	Arrangement of Mission Equipment and Rigging
B040	SOR Section 591	Government Mission Outfit Equipment Interface Control Documentation
B041	SOR Sections 640 through 691	Outfit and Accommodation Arrangements
B042	SOR Section 631	Paint Schedule
B043	Section C	Configuration Management Plan
B044	Section C	Engineering Change Proposal (ECP)
B045	Section C	Request for Deviation (RFD)
B046	Section C	Request for Waiver (RFW)
B047	Section C	Contract Problem Identification Report (CPIR)

Document Number	Reference	Document Title
B048	Section H	Progressing System Description
B049	Attach. J-9 and J-10	Detailed Cost Estimate for CLIN 0004
B050	SOR Section 042f	Detail Design and Construction Plan / Schedule

Index of Detail Design and Construction Deliverables

Document Number	Reference	Document Title
C001	SOR Section 042e	Correspondence
C002	Section C	Regulatory Body Correspondence
C003	Section C	Conference / Meeting Agendas and Minutes
C004	SOR Section 042f	Schedules
C005	SOR Section 042g	Purchase Orders
C006	SOR Section 042g	Purchase Order Index
C007	SOR Section 045	Fire and Flooding Protection Plan
C008	SOR Section 045d	Launching Plan
C009	SOR Section 070	Classification and Inspection Certificates
C010	SOR Section 070c	Endurance Fuel Calculations
C011	SOR Section 070d	Maneuvering Performance Prediction
C012	SOR Section 070e	Seakeeping Analysis Report
C013	SOR Section 070i	Dynamic Load Factors Report
C014	SOR Section 070b	Register of Lifting Appliances
C015	SOR Section 073b	Airborne Noise Analysis Report
C016	SOR Section 073d	Hull Vibration Analysis Report
C017	SOR Section 073d	Shaft Vibration Analysis Report
C018	SOR Section 073c	Sonar Noise Analysis Report
C019	SOR Section 079	Subdivision Analysis
C020	SOR Section 079	Intact Stability Analysis
C021	SOR Section 079	Damage Stability Analysis
C022	SOR Section 079	Trim and Stability Computer Program
C023	SOR Section 079, SOR Section 097	Trim and Stability Booklet
C024	SOR Section 081a	Equipment Removal Routes Plan
C025	SOR Section 081b	Maintenance Plan
C026	SOR Section 085	Construction Drawings
C027	SOR Section 085	Tank Capacity Curves, Booklet of Tank Sounding Tables and Drawings.
C028	SOR Section 085	Lines and Offsets
C029	SOR Section 085	Docking Drawing
C030	SOR Section 085	Booklet of General Drawings
C031	SOR Section 085	Machinery Arrangement Drawings
C032	SOR Section 085	Damage Control Diagrams
C033	SOR Section 085	Final Drawings
C034	SOR Section 085	Final Drawing Index
C035	SOR Section 092	Ship Acceptance Program Plan
C036	SOR Section 092	Test Schedule
C037	SOR Section 092	Test Procedures
C038	SOR Section 092	Test Reports
C039	SOR Section 094	Trial/Survey Schedule
C040	SOR Section 094	Notification of Trials
C041	SOR Section 094	Trial Agenda
C042	SOR Section 094	Trial Report
C043	SOR Section 094b	Airborne Noise Survey Report
C044	SOR Section 094c	Vibration Survey Report
C045	SOR Section 096	Bimonthly Weight Report (BWR)
C046	SOR Section 096	Final Weight Report (FWR)
C047	SOR Section 097	Inclining Experiment Procedure
C048	SOR Section 097	Inclining Experiment Report
C049	SOR Section 099	Photographs

Document Number	Reference	Document Title
C050	SOR Section 070, SOR Section 100	Structural Design Calculations
C051	SOR Section 184	Navigational System Alignment report
C052	SOR Section 200	SSV-related technical documentation
C053	SOR Section 243	Shaft Alignment Analysis
C054	SOR Section 300	Electric Power Load Analysis (EPLA)
C055	SOR Section 330	Photometric Survey Report
C056	SOR Section 491	Government Mission Electronics Equipment Interface Control Documentation
C057	SOR Section 491	Arrangement of Mission Electronics and Transducers
C058	SOR Section 512	HVAC Calculations
C059	SOR Section 591	Arrangement of Mission Outfit Equipment and Rigging
C060	SOR Section 591	Government Mission Outfit Equipment Interface Control Documentation
C061	SOR Section 600	Color Coordination Manual
C062	SOR Section 603b	Draft Mark Survey Report
C063	SOR Section 604d	Key Tags and Index Book
C064	SOR Section 611b	Hull Fittings Test Report
C065	SOR Section 631	Paint Schedule
C066	SOR Section 631	Paint Report
C067	Section C	Configuration Management Plan
C068	Section C	Engineering Change Proposal (ECP)
C069	Section C	Request for Deviation (RFD)
C070	Section C	Request for Waiver (RFW)
C071	Section C	Contract Problem Identification Report (CPIR)
C072	Section C	History of Equipment Usage
C073	Section C (C-6)	Facility Certification Report or Alternate Drydocking / Launching Method
C074	Section C	Grounding / Damage / Collision Report
C075	Section C	Adverse Environmental Conditions Plan
C076	Section H	Progressing System Description

Index of Logistics Deliverables

Document Number	Reference	Document Title
D001	SOR Section 080	Logistics Support Plan (LSP)
D002	SOR Section 083	Outfitting Summary Statistics
D003	SOR Section 083	Outfitting Operations Plan
D004	SOR Section 083	Required Spare and Repair Parts List
D005	SOR Section 083	Additional Spare and Repair Parts & Equipment List
D006	SOR Section 083	Consolidated Spare / Repair Parts Inventory List
D007	SOR Section 086	Technical Manual Organization Plan (TMOP)
D008	SOR Section 086	Technical Manual Status Report
D009	SOR Section 086	Technical Manuals
D010	SOR Section 086	Engineer's Operating Manual

Index of Training Deliverables

Document Number	Reference	Document Title
E001	Contract Section C	Crew Familiarization, Operation and Maintenance Program Plan
E002	Contract Section C	Instructor Lesson Plan
E003	Contract Section C	Student Guides

EXHIBIT A - Preliminary Design - Contract Data Requirements List

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
A001	Section C and SOR Section 070g	Feasibility Design Presentation	Provide Review copy 5 days prior to FDP, 30 DAC			Provide a presentation describing the contractor's feasibility design, cost estimate and cost drivers associated with the design study (in accordance with Attachment J-3, Feasibility Design Presentation Format) The presentation shall address: • Ship size and configuration • Design margins • Hull form and appendages • Ship motions • Speed / power and endurance • Weights and loads • Stability • Hull Structure • Major systems (Propulsion / Electric Plant) • Mission systems integration • Noise and vibration • SOR compliance and Mission Suitability Features	
A002	Section C, Attachment J-4, and SOR Section 070g	Preliminary Design Report	PDR, 120 DAC, Provide Review Copy 7 days prior PDR			Provide a report and Preliminary Design Review presentation summarizing the preliminary design effort. The report shall be formatted in accordance with Attachment J-4, "Preliminary Design Report Format".	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
A003	Attachment J-4, Section 1.3	General Arrangement Drawings	90 DAC, Provide Review Copy 7 days prior DR2,			Provide general arrangement drawings, including bow and stern views, and topside configuration. The drawings shall be in accordance with SNAME T&R Bulletins 7-2 and 7-3. Antennas, navigation lights and sensors shall be shown on outboard profile. Drawing scale shall be 1:100. Level of detail and drawings shall correspond to the preliminary design phase as indicated in SNAME T&R Bulletin 7-3. The drawing shall show locations and configurations of the following: Bridge, Charting Laboratory, multibeam echo sounding system, boat stowage and handling areas, machinery spaces, aft working deck arrangement, central control station, and ACS. Available net area shall be identified for each space and shown on a separate table. A table shall list each compartment, it's location and available net area. The bulkhead deck shall be identified. Extent of sheer and camber shall be indicated on deck plans.	
A004	Attachment J-4, Section 1.4	Hull Form	60 DAC, Provide Review Copy 7 days prior DR1			A Lines plan and a Table of offsets shall be provided. Principal hull form characteristics data shall be included on the body plan figure. Sketches depicting the shapes of the rudders, canards, and stabilizers shall be included.	
A005	Attachment J-4, Section 1.6	Weight and Center of Gravity Estimate	60 DAC, Provide Review Copy 7 days prior DR1			The design weight estimate shall be provided. The load summary shall identify the heaviest load condition. VCG's shall be located in accordance with the SOR. Include a discussion of the method(s) used to prepare the weight estimate, e.g. parametrically derived from a parent ship. Identify any parent ships used for the estimate. Discuss the sensitivity of the design to weight and center of gravity variations. Include a plan to be employed for weight control. The weight control plan shall focus on controls placed on management, engineering, purchasing, production and quality assurance organizations.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
A006	Attachment J-4, Section 1.7	Trim & Stability / Loading Conditions	90 DAC, Provide Review Copy 7 days prior DR2,			This shall include the ship's Curves of Form and a summary of the capacities and centers of gravity of all built-in tanks. Include subtotals for all tanks of each particular type (for e.g., fuel, seawater ballast, etc.). Include also a summary of draft, trim, and GMT and GML. Provide allowable KG curves for both the intact and damaged conditions, the limiting displacement for reserve buoyancy, and the following intact conditions: a. Full load condition. b. Full load condition with burnable fuel totally consumed and ten percent consumables remaining. c. Full load condition, with 50 percent fuel burned and 55 percent consumables onboard. Each of the above conditions shall be met with and without the Service Life Allowance. In addition, for each of the above conditions, list the tanks and the amount of seawater ballast carried. The allowable KG curves vs. displacement curves shall be plotted. Curves shall be shown which correspond to the governing (limiting) intact and damage stability criteria. Each curve shall be clearly labeled for the intact/damaged condition and criteria governing. Four points shall be plotted (corresponding to the ship's actual full load and burned out load conditions, at delivery and with service life allowance) with the intact and damage allowable KG curves. Both the intact and damage stability analyses shall be clearly discussed in the report, including all assumptions. The manner in which phenomena such as free surface effects and boat launching are treated shall be clearly explained and calculated or assumed values stated. For example, the effects of launching the SOLAS boat (list, trim, etc.) on ship displacement, VCG, and LCG shall be stated. The most critical stability criteria for both the intact and damage cases shall be clearly identified and described. For the worst damage case, the damage location and extent shall be stated. If any ship operating restrictions must be imposed to meet the criteria, they shall also be described.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
A007	Attachment J-4, Section 1.8.1	Speed / Power Analysis	60 DAC, Provide Review Copy 7 days prior DR1			Calculations shall be presented which clearly demonstrate that the specified design speed is met. The speed-power calculations shall be clearly labeled and shall identify all data sources and assumptions. Hull resistance, assumed margin on predicted hull resistance, appendage resistance, hull/propeller interaction coefficients, open water propeller efficiency, mechanical losses between the prime mover and the propeller, and still air drag shall be addressed. The results of the calculations shall be discussed and key results stated, including, the predicted achievable speeds at (1) 100% MCR, (2) 80% MCR (design speed). The required power level for towing at design speed shall be determined. In addition, free route speed - power curves shall be included. The curves shall show required propulsion power in kW and propeller rpm vs. speed in knots for the ship. The curves shall cover the range from zero to the maximum achievable speed. Performance while towing shall also be considered. The type of propulsors selected shall be identified. Describe and summarize all parametric calculations used to determine diameter, design RPM, pitch, blade area ratio, and number of blades. Estimates of propeller cavitation performance at the design speed, towing load, and all mission profile speeds shall be provided.	
A008	Attachment J-4, Section 1.8.2	Seakeeping	60 DAC, Provide Review Copy 7 days prior DR1			The results of seakeeping performance predictions which confirm that the seakeeping requirements of the SOR are met shall be presented. Provide a description of the seakeeping analysis tool. Document the input data; for e.g., hull form, appendage shapes, weight and center of gravity data, pitch and roll gyradii, and coordinates of points on ship at which motions are predicted. Provide rationale for any assumed values.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
A009	Attachment J-4, Section 1.8.3	Maneuvering Assessment	60 DAC, Provide Review Copy 7 days prior DR1			Present the results of performance predictions which confirm that the maneuvering, stationkeeping, and precision trackline requirements are satisfied by the proposed design. Document the hull form, appendage shapes, weight and center of gravity data, and force and moment distributions for wind, current, and waves, yaw and roll gyradii, etc. assumed for the predictions. Present analyses that illustrate how the design will satisfy the requirements. Each analysis summary shall clearly document the approach used, input data, key assumptions, and key results with discussion.	
A010	Attachment J-4, Section 2.1	Hull Structural Design Report / Midship Section Drawing	90 DAC, Provide Review Copy 7 days prior DR2,			Describe the overall structural configuration and provide rationale for it. Hull structure shall include identification of the hull structural material(s), framing system, scantling size, and strength deck. Provide rationale for the selected material(s) and framing system. Identify critical design loads for each transverse structural bulkhead. Identify high stress areas in primary structure. Address continuity of primary hull structure. Identify measures taken to absorb loads from docking, mooring, and boat operations. Address structural integration of the superstructure with the cross-structure and the haunch and lower hulls. Describe process to be followed to determine the long-term load exceedance distributions (fatigue). Identify the assumed heights of tank overflows for deep tank calculations. Identify wet deck height and rationale for height selection. Present a midship section drawing, to scale, showing the structural configuration and scantlings. Include appropriate notes and principal characteristics data on the drawing. Address status of ABS review of the midship section and hull structural design approach.	
A011	Attachment J-4, Section 2.2 & 2.3	Propulsion and Electric Plant Design Studies	90 DAC, Provide Review Copy 7 days prior			The ship's main propulsion plants shall be described. Provide rationale for the selected plant type, configuration, rating, and shaft rpm at full power for main propulsion. Describe the propulsion plant control system and provide rationale for its selection. Describe the features	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
			DR2,			incorporated in main propulsion for low speed operation. Provide rationale for the selected full power shaft rpm. Provide a scaled arrangement drawing of the propulsion and electrical generating machinery spaces, showing major items of installed equipment (plan views of each level, section view, and inboard profile). Include on the drawing major electrical and auxiliary systems equipment located in the machinery spaces and identify removal plates and location of the Centralized Control and Monitoring Station. Provide a shafting arrangement profile, from the prime mover to propeller. Present the endurance fuel calculations for each mission operating profile and identify the governing mission or transit range cruise and the required ship fuel capacity. Include preliminary calculations used to size the shafts. If an Integrated Diesel Electric Propulsion System is selected, identify and provide background on selection of the Single Source Vendor (SSV). The selected electric plant, including the power distribution system and rationale for selection shall be described. Present the Electric Plant Load Analysis (EPLA) and identify the governing load condition for generator sizing. Document the type and capacity of the major electric plant components such as generators, main and emergency switchboards, power conversion equipment, etc. in an Electrical System One-Line Diagram. Describe and provide rationale for the electric plant control and power management system. Describe how clean and uninterrupted power will be supplied to systems or equipment onboard which may be affected by harmonic distortion from non- linear, solid state, variable speed drive power sources. Describe the proposed emergency generator and provide sizing rationale.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
A012	Attachment J-4, Section 2.5	Ship Auxiliary Systems	90 DAC, Provide Review Copy 7 days prior DR2,			A system description or schematics including identification of type and capacity for each major component, rationale for system and component selection and sizing for each of the following systems shall be provided: HVAC systems; Fluid systems such as; bilge, ballast, firemain, firefighting, watermaking, compressed air, fuel service, seawater cooling and hydraulic systems; Ship control systems and canard and stabilizer actuation systems; Stores handling systems; Anchoring and mooring systems; Boat handling and stowage systems; Pollution control systems	
A013	Attachment J-4, Section 2.7	Mission Systems Arrangements	60 DAC, Provide Review Copy 7 days prior DR1			The following spaces and systems shall be described: Aft Working deck arrangements; Service Area arrangements; Charting Laboratory Location and Arrangement; Multibeam Configuration; mission sidescan and CTD winches; Dive locker; A-Frame rigging. Identify major items of equipment, speeds, capacities and ratings. Address how and from where winches, cranes, etc. will be controlled during critical operations as well as communications and visibility between the personnel performing the operations. Include sketches to supplement the text, which show the proposed arrangements of the mission systems and the equipment listed above. The rigging sketches shall depict arrangements, system equipment, and rigging leads.	
A014	Attachment J-4, Section 1.9	Noise and Vibration Analysis	90 DAC, Provide Review Copy 7 days prior DR2,			Provide an assessment of vessel generated noise as applicable to the proposed design and the impact of noise control measures necessary to meet the SOR requirements with respect to both acoustic and sonar performance. Results of the noise analyses shall be presented. Identify the noise sources considered and explain how the performance requirements were reflected in the arrangement of the ship's sonar systems.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
A015	Section C and Section L	Contract Design Phase Plan / Schedule	PDR, 120 DAC, Provide Review Copy 7 days prior PDR			Present a plan, identifying the tasks and associated schedule to complete a contract design for the proposed vessel.	
A016	Section C	Revised SOR	PDR, 120 DAC, Provide Review Copy 7 days prior PDR			The Contractor shall provide a Revised SOR incorporating changes considered necessary or appropriate to adjust performance and vessel cost to meet the NTE price ceiling This shall incorporate the proposed Mission Suitability Feature level of performance.	
A017	Section C	Design Review Agendas and Minutes	7 days prior and 14 days after meeting	Yes	30 days for minutes	The Contractor shall prepare agendas for, and minutes of, meetings with the Government. Meeting agendas shall describe the following: purpose and objective; recommended location, date and duration; a daily chronological listing of each major topic for discussion and a time schedule; brief description of progress on action items or problems identified at previous meetings; a complete list of all documentation to be available for review; and other pertinent information such as identification of any CPIRs, open items, and status of items relative to noise control requirements. Meeting minutes shall provide documentation of technical information and data required to record joint Contractor/Government decisions, action items and agreements reached during conferences, meetings, formal reviews or audits. Minutes shall include the following: type/title of meeting and meeting date; purpose; location; summary of the discussions, decisions, agreements, and directions; list of attendees; and copies of action item sheets for any actions identified during the meeting.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
A018	Sections L and H-14	Detailed Cost Estimate for CLIN 0003 and 0004	PDR, 120 DAC, Provide Review Copy 7 days prior PDR			Provide a Cost Estimate for CLIN 0003 and 0004 using attachments J-9 and J-10	
A019	Section H-11	Offer Guarantee for CLIN 0003 and 0004	120 DAC			Furnish an offer guarantee in the amount required by Clause H-11, in the form of a firm commitment, e.g., bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States.	

Notes:

DAC is calendar days after contract award.
FDP, Feasibility Design Presentation is 30 DAC.
DR1, Design Review 1 is 60 DAC.
DR2, Design Review 2 is 90 DAC.
PDR, Preliminary Design Review is 120 DAC.
CD is CD ROM Deliverable.

Note 1: Copies of correspondence, with attachments, shall be directly submitted from ABS to the Government.

EXHIBIT B - Contract Design - Contract Data Requirements List

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B001	Section C and SOR Section 070g	Critical Design Review Presentation	270 DAO3, Provide Review Copy 7 days prior to CDR			See Attachment J-5, Critical Design Review Presentation Format	
B002	SOR and Attach. J-5	General Arrangement Drawings	30 DAO3 and 5 days after revisions to suit design development and configuration changes			Based on the preliminary design phase GA drawings, the contractor shall provide general arrangement drawings, including bow and stern views, and topside configuration. The drawings shall show the current approved configuration and shall be maintained through the contract design phase to show the current status of design development. The drawings shall be in accordance with SNAME T&R Bulletins 7-2 and 7-3. Antennas, navigation lights and sensors shall be shown on outboard profile. Drawing scale shall be 1:100. Level of detail and drawings shall correspond to the contract design phase as indicated in SNAME T&R Bulletin 7-3. Key features of the general arrangement shall be provided, including the locations and configurations of the following: Bridge, Charting Laboratory, multibeam echo sounding system, boat stowage and handling areas, machinery spaces, aft working deck arrangement, central control station, and ACS. The document shall be assigned a drawing number and included in the drawing schedule.	
B003	Section C	Revised SOR	270 DAO3			Revised SOR incorporating the design changes resulting from the Contract Design Development, as approved, in accordance with the Configuration Management Procedure. The Contract Design Phase Final SOR shall reflect the contracted vessel design and performance.	
B004	SOR Section 042e	Correspondence	5 days after issue or receipt			Copies of correspondence with attachments from the Contractor to non-Regulatory Body agencies of the Government shall be provided.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B005	Section C	Regulatory Body Correspondence	5 days after issue or receipt			Copies of correspondence with attachments to and from the Contractor and Regulatory Bodies shall be provided.	
B006	Section C	Design Review Conference / Meeting Agendas and Minutes	7 days prior and 14 days after meeting	Yes	30 days for minutes	The Contractor shall prepare agendas for, and minutes of, meetings with the Government. Meeting agendas shall describe the following: purpose and objective; recommended location, date and duration; a daily chronological listing of each major topic for discussion and a time schedule; brief description of progress on action items or problems identified at previous meetings; a complete list of all documentation to be available for review; and other pertinent information such as identification of any CPIRs, and open items. Meeting minutes shall provide documentation of technical information and data required to record joint Contractor/Government decisions, action items and agreements reached during conferences, meetings, formal reviews or audits. Minutes shall include the following: type/title of meeting and meeting date; purpose; location; summary of the discussions, decisions, agreements, and directions; list of attendees; and lists of action items for any actions identified during the meeting.	
B007	SOR Section 042f	Contract Design Phase Schedules	Monthly			The Contractor shall provide and update schedules necessary for the purpose of establishing an orderly and systematic contract design program, and identifying progress against planned scheduled events. The schedules and progress billings shall be integrated and shall provide the following: a. **Contract Design Schedule.** - A Contract Design Schedule shall show the order in which the design effort will take place, including the identification of major events and milestones such as major design reviews and contract deliverables.. This schedule shall be in sufficient detail to identify engineering and cost estimating activities, which impact project scheduling. At a minimum, the schedule shall include start of design, design reviews, and start and completion of the following: tank test model construction,	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
						model testing, ABS structural design review. b. **Drawing Schedule.** - A Drawing Schedule shall consist of a list of drawings and data. The schedule shall be keyed to the contract design phase schedule and shall identify the title, drawing number, drawing development media (electronic/manual), computer file name (if applicable), Regulatory Body submittal and approval dates, original start date, scheduled issue date, and actual issue date, status, revision level and revision date.	
B008	SOR Section 045d	Preliminary Launching Plan	180 DAO3			Preliminary Launching Plan and Analysis – Address the plan for launching the constructed vessel including methodology, preliminary calculations, building location and facilities for launching. The document shall be assigned a drawing number and included in the drawing schedule.	
B009	SOR Section 070	Structural Classification Review	per drawing schedule			Scantling Plans (including: Midship Section, Shell Expansion, Decks and Platforms Transverse sections, longitudinal sections, lower hull scantlings, Watertight, structural and tank bulkheads, pillars and girders, superstructures and deckhouses, and others as necessary, to fully define the hull structure for class review) and structural calculations (including fatigue analyses) shall be reviewed and approved by ABS (subject to detail design development and survey). The document shall be assigned a drawing number and included in the drawing schedule.	
B010	SOR Section 070c	Endurance Fuel Calculations	per drawing schedule			Endurance fuel calculations shall be updated as new data becomes available (model test data) or new equipment is selected, and shall be provided in accordance with SNAME Technical and Research Bulletin No. 3-49 Marine Diesel Power Plant Practices. Fuel rates shall be calculated based on the stated speeds of the ship operating at full load condition in calm water, fair weather and with a clean bottom. Provide the endurance fuel calculations for each mission operating profile / transit range cruise and identify the governing mission or transit and the required	

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						ship fuel capacity. The document shall be assigned a drawing number and included in the drawing schedule.	
B011	SOR Section 070d	Maneuvering Performance Prediction	per drawing schedule			The Contractor shall provide an updated maneuvering performance prediction for the contract design vessel. The analysis shall identify the methodology used, and shall include a summary of predicted performance for each maneuvering condition. Input data and output files for each prediction shall be included. The document shall be assigned a drawing number and included in the drawing schedule.	
B012	SOR Section 070e	Seakeeping Analysis Report	per drawing schedule			Seakeeping performance predictions shall be updated for the contract design vessel. These shall confirm that the seakeeping requirements of the SOR are met shall be presented. Provide a description of the seakeeping analysis tool. Document the input data; for e.g., hull form, appendage shapes, weight and center of gravity data, pitch and roll gyradii, and coordinates of points on ship at which motions are predicted. Provide rationale for any assumed values. The document shall be assigned a drawing number and included in the drawing schedule.	
B013	SOR Section 070i	Dynamic Load Factors Report	per drawing schedule			A report addressing development of dynamic load factors in storm conditions shall be provided. The resulting dynamic load factor formuli shall be incorporated in the SOR for the detail design and construction phase. The document shall be assigned a drawing number and included in the drawing schedule.	
B014	SOR Section 070c	Hydrodynamic Model Test Plan	45 days prior to start of tests			A hydrodynamic model test plan shall be provided describing the models, model construction, and hydrodynamic model tests to be performed.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B015	SOR Section 070c	Hydrodynamic Model Test Reports	30 days after completion of tests			Hydrodynamic model test reports shall be provided and shall contain the results of model tests for the contract design hull. As a minimum, test data shall include flow line tests for canard/stabilizer alignment, bare hull resistance, appended resistance, and stock propeller self propulsion.	
B016		Speed / Power Analysis	60 days after completion of model tests			Updated calculations shall be presented for the contract design, which clearly demonstrate that the specified design speed is met. Model test results shall be incorporated. The speed-power calculations shall be clearly labeled and shall identify all data sources and assumptions. Hull resistance, assumed margin on predicted hull resistance, appendage resistance, hull/propeller interaction coefficients, open water propeller efficiency, mechanical losses between the prime mover and the propeller, and still air drag shall be addressed. The results of the calculations shall be discussed and key results stated, including, the predicted achievable speeds at (1) 100% MCR, (2) 80% MCR (design speed). The required power level for towing at design speed shall be determined. In addition, free route speed - power curves shall be included. The curves shall show required propulsion power in kW and propeller rpm vs. speed in knots for the ship. The curves shall cover the range from zero to the maximum achievable speed. Performance while towing shall also be considered. The type of propulsors selected shall be identified. Describe and summarize all parametric calculations used to determine diameter, design RPM, pitch, blade area ratio, and number of blades. Estimates of propeller cavitation performance at the maximum speed, design speed, towing load, and all mission profile speeds shall be provided. The document shall be assigned a drawing number and included in the drawing schedule.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B017	SOR Section 073b	Airborne Noise Analysis Report	per drawing schedule			An Airborne Noise Analysis Report shall be prepared. Data and assumptions utilized in development of the report and noise control treatments incorporated into the design shall be fully documented. SNAME Technical and Research Bulletin No. 3-37 may be used as a guide in performing the machinery portion as well as the Heating, Ventilation, and Air Conditioning (HVAC) system portion of the analysis. For the HVAC portion of the noise analysis, the Contractor may also utilize information presented in ASHRAE, Applications Handbook, 1991 edition, Chapter 42, "Sound And Vibration Control" plus other ASHRAE publications, provided the Contractor fully documents publications from which data are extracted. Noise sources, including machinery structure borne as well as airborne noise contributions to compartment noise levels shall be identified and documented in the airborne noise analysis report. The Contractor's airborne noise analysis report shall also include noise estimates for a minimum of four spaces for each HVAC fan or air handling unit, two or more for the inlet and two or more for the discharge side, as applicable. HVAC noise contributions documented in the airborne noise analysis report shall include "breakout" noise as well as noise emitted from duct openings and diffusers. Both fan and flow regenerated noise contributions shall be included in the HVAC system portion of the noise analysis. The document shall be assigned a drawing number and included in the drawing schedule.	
B018	SOR Section 073d	Hull Vibration Analysis Report	per drawing schedule			A Hull Vibration Analysis Report shall be prepared. Data, assumptions, conclusions, and changes incorporated into the design shall be fully documented. The Hull Vibration Analysis Report shall assess low frequency vibration of the hull girder, mast, the superstructure, the stern sections in way of the propellers, and the propulsion motors, SCR’s (if provided) and generators system. Vibration produced by the propulsor	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
						and the propulsion machinery shall be included in the analysis, and the analysis frequency range shall encompass the primary excitation frequencies of these sources, including propulsor blade rate and machinery forcing frequencies. The analysis shall incorporate a detailed model of the ship hull structure and propulsion system mass/stiffness distribution, which shall include the effects of the interaction between the ship structure and the surrounding water. The results of the analysis shall identify the natural frequencies and mode shapes of the ship structure and the propulsion system. The results shall also include forced response amplitudes of the ship structure resulting from propulsor and propulsion machinery excitations. The results of the forced response analysis shall be compared to the ship vibration criteria, and any design modifications necessary to meet the criteria shall be included. The ship structure and propulsion system natural frequencies and mode shapes provided by the analysis shall be used to identify necessary design modifications. The document shall be assigned a drawing number and included in the drawing schedule.	
B019	SOR Section 073d	Shaft Vibration Analysis Report	per drawing schedule			A shaft vibration analysis report shall be prepared. These analyses shall include the following: a. Whirling Critical Speed Analysis to ensure that the shaft-propeller mass system is free of unbalance masses. The acceptable critical speed shall not be below 115 percent of the design full power shaft r/min. b. Lateral Critical Frequency Analysis to ensure that the propulsion shafting system will be free from any lateral shaft rate excitations below 115 percent of the design full power shaft r/min. The calculated critical lateral frequency shall be compared with the propeller excited frequency at blade rate to ensure that there will be no shaft lateral vibratory excitations. c. Longitudinal Vibration Analysis to ensure that the design of the shafting system and the selection of the	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
						thrust bearing stiffness shall be such that the computed longitudinal critical speeds are above 115 percent of the design full power r/min. d. Torsional Vibration Analysis to ensure that the propulsion shafting system is free of torsional criticals. The document shall be assigned a drawing number and included in the drawing schedule.	
B020	SOR Section 073c	Sonar Noise Analysis Report	per drawing schedule			A Sonar Noise Analysis Report shall be prepared for the contract design. Data, assumptions, conclusions, and changes incorporated into the design for noise performance purposes shall be fully documented. The Sonar Noise Analysis shall assess the effect on performance of the mission sonar systems of Table 073-2 of all vessel generated noise. The analysis shall use operating parameters of the sonars to calculate the sounding depth capability as a function of sonar and vessel self-noise level. The significant shipboard noise sources shall be identified, and noise source levels quantified for each. Paths by which noise propagates from each source to the sonar shall be identified where possible, and the transmission loss along each path shall be calculated. The resultant predicted noise levels at the sonar shall be combined to form the local noise level. Sonar design parameters shall be used to calculate array gains, which shall be applied to the local noise to estimate the sonar self-noise level of the sonars as installed in the ship. These results shall be used to predict the sounding depth and angular coverage capability of the scientific sounding systems as installed in the ship. The sounding depth capability shall be compared to the sounder/sonar depth and angular performance requirements. The analysis shall include any design modifications necessary to meet the sonar performance requirements. The document shall be assigned a drawing number and included in the drawing schedule.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B021	SOR Section 079	Subdivision Analysis	per drawing schedule			A subdivision analysis shall be prepared to show compliance with 46 CFR 171.070. The analysis shall be submitted to USCG and to the Government. The document shall be assigned a drawing number and included in the drawing schedule.	
B022	SOR Section 079	Intact Stability Analysis	per drawing schedule			An intact stability analysis shall be prepared to show compliance with 46 CFR 170.170 and 170.173. Limiting KG data shall be determined. The analysis shall be submitted to USCG and to the Government. T&S Loading conditions shall be provided. Curves of form shall be generated and included for the contract design hull form. The document shall be assigned a drawing number and included in the drawing schedule.	
B023	SOR Section 079	Damage Stability Analysis	per drawing schedule			A damage stability analysis shall be prepared to show compliance with 46 CFR 171.080. Limiting KG data shall be determined. The analysis shall be submitted to USCG and to the Government. The document shall be assigned a drawing number and included in the drawing schedule.	
B024	SOR Section 081	Equipment Removal Routes Plan	per drawing schedule			Individual component diagrams with accompanying written instructions shall be provided that demonstrate and explain the process for removal of major components from their installed location to the engineer's workshop, and for removal from the ship. The specific routes and required preparation (by disassembly of other systems and components) shall be included, as well as any cutting of steel hull or support members. A list of equipment required to maneuver components shall be provided in the written instructions for each component. Component diagrams and written instructions shall be provided for the following: storerooms for handling repair parts and spare parts, propulsion motors, steering system, canard system, propeller, propeller shaft, shaft bearings, diesel engines, generators, motors, bow thruster, hydraulic power units, transformers, switchboards, hot water heaters, fire/bilge/ballast pumps, heat exchangers, compressors,	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
						ventilation units and integrated bridge system consoles, sonar transducer space and the space and weight area assigned for the diving air compressor. The document shall be assigned a drawing number and included in the drawing schedule.	
B025	SOR Section 085	Contract Design Drawings	per drawing schedule			**General -** Drawings shall be prepared to depict the design of the ship. Drawings shall make reference to and be consistent with other related drawings, technical manuals, and other technical documentation. The latest revision of each drawing shall accurately reflect the current status of changes. Identification of all revisions and modifications shall be incorporated on the drawings. Contract Drawings shall include (along with other drawings and data listed in this Exhibit B): 1. Scantling Plans 2. Steering Gear, Canard Actuation and Ship Control Systems Arrangements 3. Propeller Design 4. Anchoring and Mooring Arrangements 5. Boat Handling and Stowage Arrangements 6. Power System One Line Diagram 7. Electronics Systems Block Diagrams 8. Auxiliary Equipment and Fluid Systems Diagrams (sea water cooling, combustion air & exhaust, fuel service, lube oil, firemain, bilge and ballast, freshwater, fuel fill and transfer, compressed air, waste water, sewage and oily waste) 9. HVAC Diagrams Drawings and associated lists shall be identified with the contractor's CAGE code and contractor document numbers or with the NOAA CAGE code and a document number.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B026	SOR Section 079, SOR Section 096	Tank Capacity Table Data	per drawing schedule			Calculations for all tank tables shall be based on the assumption that the ship has zero trim. Vertical centers of gravity shall be referenced to the baseline. Longitudinal centers of gravity shall be referenced forward perpendicular to the same longitudinal references as used in the curves of form. Transverse centers of gravity shall be referenced to the centerline of the ship. For tanks that are completely symmetrical about the centerline of the ship, a note to this effect shall be added to the drawing. The document shall be assigned a drawing number and included in the drawing schedule.	
B027	SOR Section 085	Lines and Offsets	per drawing schedule			The lines drawing shall show faired lines and tabulated offsets at equally spaced stations. Lines of contours and decks shall be shown. A tabulation of dimensions of the faired lines shall be included as follows: a. Half-breadth of shell plating of waterlines at every frame. b. Heights and half-breadths on every frame of the following: 1. Centerline of shafts 2. Decks and platforms 3. Knuckles 4. Longitudinal bulkheads 5. Transverse bulkheads 6. Heights of buttocks of shell and inner bottom on every frame 7. Dimensions of bow and stern profiles 8. Rudder and Canard Dimensions, sections and shapes 9. Dimensions of other appendages and contours The document shall be assigned a drawing number and included in the drawing schedule.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B028	SOR Section 085	Machinery Arrangement Drawings	per drawing schedule			Machinery arrangement drawings shall show propulsion, electrical, and auxiliary machinery systems and equipment. Machinery arrangement drawings shall also show other pertinent features such as major machinery foundations, removal space outlines, unshipping of shafting, combustion air intake and exhaust systems, ladder landings and accesses, stanchions, overhead structure, bulkhead stiffeners, and other hull structure necessary to indicate machinery obstructions, large piping such as sea connections and valves, location of BERPs and WERPs for shipping and unshipping machinery, permanent lifting gear location, purpose and arrangements, and locations of firefighting equipment. Major piping systems, tanks, ventilation, wireways and other distribution systems shall be shown. The document shall be assigned a drawing number and included in the drawing schedule.	
B029	SOR Section 096	Periodic Contract Design Weight Estimate	60 DAO3 and 60 day intervals thereafter	Yes	30	A detailed weight estimate in the Three-Digit System incorporating design development during the contract design phase. The CDWE shall document the current mass properties status of the contract design effort. The light ship, full load, and light operating conditions shall reflect the ship that is projected for delivery, including the current mass properties values for GFM and margins. The ship's displacement, KG, list, and trim shall be compared to the design values for displacement, KG limits and the specified allowable ranges for list and trim. Report details shall indicate whether the information shown is estimated, calculated, or weighed.	
B030	SOR Section 096	Final Contract Design Weight Estimate (CDWE)	14 days prior CDR	Yes	Prior to exercise of CLIN 0004	The final CDWE shall be prepared at end of Contract Design Phase. Approval consists of a mutual agreement between the Contractor and the Government on the light ship weight, center of gravity and margins for which the Contractor will be responsible in Detail Design and Construction.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B031	SOR Section 096	Weight Control Plan	30 DAO3			The Contractor shall provide a weight control plan for the contract design and detail design and construction phases that includes, but is not limited to the following: a) A discussion of design risk with respect to the ship's naval architectural characteristics, including special weight control problems and the areas that will receive weight control emphasis. b) A discussion of the methodology to be used in adjusting margin accounts. c) The frequency of briefings to top management concerning the ship's naval architectural condition throughout the detail design and construction phase. The individual who will give the briefings shall be identified. d) A description of the computer systems, both hardware and software, that will be utilized in the weight control effort. e) A listing of equipment that will be used to perform actual weight measurements. The listing shall include equipment capacity, accuracy tolerance, and calibration frequency. f) A discussion that conveys an understanding of the actual weight determination requirements of the contract. g) A discussion of the detail to which the ship construction drawings will be calculated and the recommended selected areas of the estimates and reports that will be scheduled for timely calculations during the design phase of the contract. h) The reporting schedule and cut-off dates for weight calculations. i) The planned action for verification of mill tolerances, welding, and paint factors. j) The management and technical authority of the weight control coordinator relative to the overall design effort anticipated. k) The method of communicating the condition of the ship to line personnel. l) The management actions which will be taken upon	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
						detection of weight and margin trends tending to cause contractual values to be exceeded. m) The method and degree of weight control that will be required of subcontractors and vendors. n) A discussion of construction monitoring techniques that will be used to ensure that the ship, as constructed, is accurately reflected in the weight reports. o) A discussion of weight control training to be administered to personnel involved in the design and construction of the ship. The document shall be assigned a drawing number and included in the drawing schedule.	
B032	SOR Section 200	SSV-related technical documentation	per drawing schedule			If an Integrated Diesel Electric power plant is provided, the following SSV-related technical documentation shall be provided: a. Correspondence with Regulatory Bodies. b. Noise reduction measures incorporated in the design. c. System design schedule.	
B033	SOR Section 243	Shaft Alignment Analysis	per drawing schedule			An alignment analysis of the propulsion shafting system shall be prepared. The alignment analysis shall determine proper waterborne alignment and shall include the following: a. A labeled line diagram of the shaft bearing system indicating dimensions, locations of bearings, types of bearings, and assumptions used in performing the analysis. b. A table of bearing reaction influence numbers of each bearing for a 0.025 mm vertical change in position with respect to itself and the other bearings in the system. c. A table showing bearing reactions and bearing pressures for each bearing for the following conditions: 1. Waterborne alignment condition. 2. Maximum allowable wear down condition.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
						3. Machinery and foundation cold and hot conditions. d. A table of bending moment, shear, and deflection of the propulsion shafting system for each of the above alignment conditions. Values shall also be plotted. e. Wear down of oil lubricated bearings may be ignored. f. No bearing reaction may be less than 900 kg in the hot operating condition. Alignment criteria for the propulsion motor system and the propulsion shafting shall be included and form a part of the shaft alignment analysis. The document shall be assigned a drawing number and included in the drawing schedule.	
B034	SOR Section 300	Electric Power Load Analysis (EPLA)	per drawing schedule	Yes	30	An EPLA shall be prepared and shall tabulate the data required by the Regulatory Bodies and the electrical operating load requirements for each ship operating condition. The load analysis shall include the mission related electrical loads for the mission equipment defined in Sections 491 and 591. The EPLA shall be updated periodically throughout the contract design, detail design and construction phases. The EPLA shall contain the following operating conditions of the ship: one generator operations, winter cruising, winter full power, winter on station at 0 speed (stationkeeping), summer on station at 0 speed (stationkeeping), summer cruising, summer full power, anchor, towing, boat launching / recovery, in-port, and emergency. If an Integrated Diesel Electric plant is provided, the EPLA shall include propulsion and propulsion motor loads. Full power shall be 100 percent of maximum continuous shaft horsepower. Electrical loads shall be assigned at the three-digit WBS level and grouped in categories as follows: 200 Propulsion 300 Electrical 400 Electronics and Navigation	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
						500 Auxiliary Systems 600 Outfit and Furnishings The Electric Power Load Analysis shall show operating loads under the required ship operating conditions, tabulated and summarized in such a way as to demonstrate adequacy of the ship's generators. The Electric Power Load Analysis shall contain data for the development of a power system with adequate generating capacity and power conditioner capacity for the loads shown. The analysis data shall be maintained current as previously recorded loads change. The document shall be assigned a drawing number and included in the drawing schedule.	
B035	SOR Section 491	Government Mission Electronics Equipment Interface Control Documentation	per drawing schedule			The Contractor shall develop and provide Interface Control Documentation to fully define all necessary interfaces with the vessel for installation and operation of each item of Government Mission Electronics Equipment listed in Attachment J-7, GFI. This ICD information shall be used to develop the contract design and detail design and construction of the vessel and shall include but not be limited to requirements for foundations/bolt patterns, electric power and connections, control cables and connections, signal cables and connections, foundation stiffness requirements, noise and operating environmental limits, seachests, piping systems, etc. The document shall be assigned a drawing number and included in the drawing schedule.	
B036	SOR Sections 070f, 491, 691	Charting Laboratory Arrangement	per drawing schedule			An arrangement drawing of the charting laboratory shall be provided. The drawing shall show a functional arrangement of all required mission and outfit equipment and demonstrate compliance with the SOR. The document shall be assigned a drawing number and included in the drawing schedule.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B037	SOR Section 512	HVAC Calculations	per drawing schedule			HVAC calculations shall be prepared and shall identify equipment and loads. Guidance relative to determination of heating and cooling loads and selection of heat transfer coefficients shall be in accordance with SNAME Technical and Research Bulletin Nos. 4-16 and 4-7. The document shall be assigned a drawing number and included in the drawing schedule.	
B038	SOR Sections 200 and 500	Fluid Systems Calculations	per drawing schedule			Calculations shall be provided to support the contract design system diagrams including but not limited to sea water cooling, combustion air & exhaust, fuel service, lube oil, firemain, bilge and ballast, freshwater, fuel fill and transfer, compressed air, waste water, sewage and oily waste. The document shall be assigned a drawing number and included in the drawing schedule.	
B039	SOR Section 591	Arrangement of Mission Equipment and Rigging	per drawing schedule			The Contractor shall prepare drawings showing the arrangement of the mission equipment and rigging. The drawings shall include separate rigging arrangements for overboard work (including cranes and A-frame operation), mission winch operations and boat handling. Calculations and stress diagrams for weight handling equipment shall be provided with each drawing.	
B040	SOR Section 591	Government Mission Outfit Equipment Interface Control Documentation	per drawing schedule			The Contractor shall develop and provide Interface Control Documentation to fully define all necessary interfaces with the vessel for installation and operation of each item of Government Mission Outfit Equipment listed in Attachment J-7, GFI. This ICD information shall be used to develop the contract design and detail design and construction of the vessel and shall include but not be limited to requirements for foundations/bolt patterns, electric power and connections, controls cables and connections, signal cables and connections, foundation stiffness requirements, noise and operating environmental limits, seachests, piping systems, etc. The document shall be assigned a drawing number and included in the drawing schedule.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B041	SOR Sections 640 through 691	Outfit and Accommodation Arrangements	per drawing schedule			Arrangements drawings shall be prepared to demonstrate that the required outfit and furnishings can be accommodated in the spaces allocated in the design. Functional arrangements of outfit and furnishings shall be provided for the galley, mess / lounge, staterooms, T/S, laundry, trash compactor room, offices, bridge, damage control lockers, workshops, storerooms and the service area/ dive locker. The document shall be assigned a drawing number and included in the drawing schedule.	
B042	SOR Section 631	Paint Schedule	per drawing schedule			A Paint Schedule shall be provided in spreadsheet format, listing all surfaces on the ship, which will receive a coating system. The listing shall be arranged by compartment, deck levels, ship structure, or general location to provide a logical presentation of the information. For each surface, the schedule shall identify: the required surface preparation standard, a generic identification of each paint used to create the required coating system, the dry film thickness of each layer of paint to be used, and the color of each paint to be used in the required coating system. In addition to the requirements of section 631a, the Paint Schedule shall consist of a listing of each component/space to be painted, surface, coats, paint thickness, paint type, paint color, insulation, and remarks. The document shall be assigned a drawing number and included in the drawing schedule.	
B043	Section C	Configuration Management Plan	30 DAO3	Yes	30	The contractor shall provide documentation of a program for Configuration Management in accordance with Section C. The plan shall document how compliance with SOR and baseline data will be maintained through the contract design and detail design and construction phases.	
B044	Section C	Engineering Change Proposal (ECP)	As Required	Yes	45	ECPs shall contain a detailed description of the scope of work, plans and sketches show the before and after configurations, list of materials added or deleted, cost estimate, ILS impact, estimate of the effect on weight and moment. and/or estimate of effects on delivery schedule.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
B045	Section C	Request for Deviation (RFD)	As Required	Yes	20	Deviations are written authorizations to depart from a particular performance or design requirement for a specific number of units or period of time.	
B046	Section C	Request for Waiver (RFW)	As Required	Yes	20	Waivers are written authorizations accepting a configuration item or other designated item which, during production or after having been submitted for inspection, is found to depart from the specified requirements, but nevertheless is considered suitable for use “as-is”.	
B047	Section C	Contract Problem Identification Report (CPIR)	As Required	Yes	45	This is a report used by the Contractor for the purpose of alerting the Government to actual or potential contract problems and of establishing an early dialogue between the Contractor and the Government with regard thereto.	
B048	Section H	Progressing System Description	Monthly	Yes	30	A certified description of the progress made for purposes of progress payment shall be provided.	
B049	Attach. J-9 and J-10	Detailed Cost Estimate for CLIN 0004	15 days prior to CDR			Provide a cost estimate using Attachment J-9 and J-10 for completion of CLIN 0004.	
B050	SOR Section 042f	Detail Design and Construction Plan / Schedule	15 days prior to CDR			A Design and Construction Schedule shall show the order in which the design and construction of the ship will take place, including the identification of major events and milestones. This schedule shall be in sufficient detail to identify engineering and production activities, which impact project scheduling. At a minimum, the schedule shall include start of design, design reviews, release for production and start and completion of the following: fabrication, assembly and erection of major structural units, installation of major foundations, machinery installations, electrical systems installation, and system checkout/testing.	

Notes:

DAC is calendar days after contract award.
DAO3 is calendar days after CLIN 0003 option exercise.
CDR is Contract Design Critical Design Review, 270 DAO3
DAO4 is calendar days after CLIN 0004 option exercise.

HC is Hard Copy, two paper deliverables are required.
CD is CD ROM Deliverable.

Note 1: Copies of correspondence, with attachments, shall be directly submitted from ABS to the Government.

EXHIBIT C – Detail Design and Construction - Contract Data Requirements List

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
C001	SOR Section 042e	Correspondence	5 days after issue or receipt			Copies of correspondence with attachments from the Contractor to non-Regulatory Body agencies of the Government shall be provided.	HC
C002	Section C	Regulatory Body Correspondence	5 days after issue or receipt			Copies of correspondence with attachments to and from the Contractor and Regulatory Bodies shall be provided.	HC, See note 1
C003	Section C	Conference / Meeting Agendas and Minutes	7 days prior and 14 days after meeting	Yes	30 days for minutes	The Contractor shall prepare agendas for, and minutes of, meetings with the Government. Meeting agendas shall describe the following: purpose and objective; recommended location, date and duration; a daily chronological listing of each major topic for discussion and a time schedule; brief description of progress on action items or problems identified at previous meetings; a complete list of all documentation to be available for review; and other pertinent information such as identification of any CPIRs and open items. Meeting minutes shall provide documentation of technical information and data required to record joint Contractor/Government decisions, action items and agreements reached during conferences, meetings, formal reviews or audits. Minutes shall include the following: type/title of meeting and meeting date; purpose; location; summary of the discussions, decisions, agreements, and directions; list of attendees; and copies of action item sheets for any actions identified during the meeting.	
C004	SOR Section 042f	Schedules	30 DAO4, 10 days after change			The Contractor shall prepare integrated schedules necessary for the purpose of establishing an orderly and systematic construction program, and identifying progress against planned scheduled events. Schedules are to be developed and reported to the Government monthly. The schedules and progress billings shall be integrated and shall provide the following: a. **Design and Construction Schedule.** - A Design and Construction Schedule shall show the order in which the	

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						design and construction of the ship will take place, including the identification of major events and milestones. This schedule shall be in sufficient detail to identify engineering and production activities, which impact project scheduling. At a minimum, the schedule shall include start of design, design reviews, release for production and start and completion of the following: fabrication, assembly and erection of major structural units, installation of major foundations, machinery installations, electrical systems installation, and system checkout/testing. The Design and Construction Schedule shall contain a status for each Regulatory Body Certificate during the design and construction phases. b. **Drawing Schedule.** - A Drawing Schedule shall consist of a list of design drawings and data, and a list of ship construction drawings. The schedule shall be keyed to the design and construction schedule and shall identify the title, drawing number, drawing development media (electronic/manual), computer file name (if applicable), Regulatory Body submittal and approval dates, original start date, scheduled issue date, and actual issue date, status, revision level and revision date. c. **Material Ordering Schedule.** - A Material Ordering Schedule shall identify material procurement orders, planned material delivery and receipt dates, applicable purchase order number(s), anticipated lead time, scheduled and actual purchase order issue dates, name of supplier, required and actual delivery dates. d. **Schedule of Major Events and Milestones.** – A Schedule of Major Events and Milestones shall identify key events including major design reviews and contract deliverables, start of construction, keel laying, machinery installation, launching, compartment testing, Builder's Trials, Acceptance Trials, Mission Trials and ship delivery. e. **Multiview Report (MVR)** – Earned value	

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						management system (EVMS) data shall be reported in Contractor's format. 1. Organization of data - i. A work breakdown structure (WBS) tailored to effective shipyard internal management control shall be used. ii. The company's planning, scheduling, budgeting, work authorization, cost accumulation, and billing processes shall be integrated. iii. The Contractor's program work breakdown structure and program organization structure (engineering and production) shall be integrated in a manner that permits labor hour and schedule performance measurement by elements of both structures as needed. iv. The contractor shall to establish budgets for authorized work with identification of labor hour elements as required for internal management. v. The contractor's work authorization system shall contain discrete work packages that establish budgets and other measurable units sufficient to accomplish effective shipyard management control and reporting. vi. The sum of all work and planning package budgets, including management reserve, shall equal the control account budget. vii. The contractor shall identify and control level-of-effort activity by time phased budgets established for this purpose. viii. The contractor shall ensure that the	

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						target labor goal is reconciled with the sum of all internal program budgets and management reserves. 2. Analysis and Reports i. MVRs shall be provided at least monthly using actual data from the contractor's internal management control system reconciled to the contractor's cost accounting system. 1. The contractor shall provide an MVR based on an earned value assessment process to provide labor hour and schedule performance information for NOAA program management. This report shall provide labor hour and schedule trends to date and provide indications for both labor hour and schedule problems and the effect of implemented management actions to resolve such problems. Revised estimates of labor hour at completion shall be based on performance to date and estimates of future conditions. 2. The following data shall be provided for both production budget/actual data and engineering budget/actual data: a. Contractor's name and location b. Contract number, award date, and contract modification number upon which the report is based. c. Identification of the report	

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						as containing production data or engineering data. d. Report period – the beginning and ending dates of the period covered by the report. e. Planned hours to date, expressed as a percentage of budgeted hours. f. Actual hours to date, expressed as a percentage of budgeted hours. g. Earned hours to date, expressed as a percentage of budgeted hours. h. Percent complete. i. Estimate to complete, expressed as a percentage of budgeted hours. j. Estimate at completion, expressed as a percentage of budgeted hours. k. Schedule efficiency to date. l. Labor hour efficiency to date. m. Labor hour variance. n. Planned hours for the period. o. Actual hours for the period. p. Earned hours for the period. q. Schedule efficiency for the period. r. Labor hour efficiency for	

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						the period.	
C005	SOR Section 042g	Purchase Orders	5 days after release of purchase order			Copies of purchase orders and changes thereto shall be provided. Purchase orders shall contain the Government designation of the ship for which material is intended, part/model number, applicable specifications and drawings, firm name, address of subcontractor or vendor, required delivery dates by line item, tests and inspections required. Each system, equipment, component and data items shall be assigned a separate line item; however, similar items shall be grouped together as a single line item.	
C006	SOR Section 042g	Purchase Order Index	60 DAO4			An index of purchase orders shall be provided. The index shall include purchase order number, description, manufacturer name, manufacturer address, manufacturer make and model number, applicable 3-digit WBS number, weight, and current dollar value. Canceled and superseded purchase orders shall remain on the index. Changes and revisions shall be listed directly below the purchase order to which they apply and include updated information. Reissued purchase orders shall reference original purchase order numbers.	
C007	SOR Section 045	Fire and Flooding Protection Plan	90 days before construction	Yes	30	A fire and flooding protection plan shall be prepared describing the procedures the Contractor will use to provide surveillance and prevent, fight, and control fire and flooding. This plan shall include the controls, responsibilities, interfaces, procedures, schedules and resources necessary to implement the plan. The plan shall include, but not be limited to, a damage control organization chart, an outline of protection and detection systems and associated detectors, alarms, and telephones; fire, flooding, evacuation, and watch bills, and pertinent instructions outlining the required precautions and actions regarding the following: a. Flooding, both gross and local b. Heavy snow loading, excess firefighting water and flood water, which could cause static instability of the	

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						hull when afloat. c. Welding, cutting, smoking, and electric arcing, and handling of combustible material, such as fuel oil, paint, wood staging and trash, that could result in fire ignition. d. Reduced accessibility on an incomplete ship. e. Requirements and restrictions for inspection, for roving patrols, and for controlling fires or flooding in security and radiation areas. f. Safety instructions for fire fighting shall also contain requirements and restrictions for inspection and for fighting fires. The fire and flooding protection organization chart and instructions shall be kept up to date. Revisions shall be submitted for approval before reaching the level of construction to which they are to be applied.	
C008	SOR Section 045d	Launching Plan	90 Days before Launch	Yes	30	A launch procedure shall be prepared with calculations supporting the estimated weight, VCG and satisfactory stability in the launch condition with appropriate restraints and safety criteria established. The plan shall be signed and stamped by an independent third party registered professional engineer with experience in launching vessels. The procedure shall be approved by the Government before launch. The launching plan may be presented in the Contractor's format. The launching plan shall include the following: a. A description of construction of ground ways, sliding ways, and foundation, b. Inclination and camber of ways, c. The type and amount of lubricants, method of application, and estimated coefficients of static and sliding friction, d. Size and spacing of grease irons, e. A description of the construction of the cradle, including fore and after poppets, f. Number, size, and arrangement of wedges,	

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						g. Description of outside shoring and blocking, h. Description of internal shoring, i. Arrangement for snubbing, j. A statement of degree of completion of hull and machinery at launching, k. Procedure and schedule for removing blocks and shores, removing grease irons, for wedging up, and letting go, l. Customary launching calculations, m. Docking Drawing. If other means of launching are proposed, the launching plan shall contain information and computation comparable to the level of detail required above. If a drydock / marine railway / shiplift is used to launch or dock the vessel, the evolution shall be carried out under the direction of a certified dockmaster.	
C009	SOR Section 070	Classification and Inspection Certificates	7 days after issue			Required Regulatory Body certificates shall be provided. Documentation required by 33 CFR 164.35 shall be provided on the bridge.	HC
C010	SOR Section 070c	Endurance Fuel Calculations	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C011	SOR Section 070d	Maneuvering Performance Prediction	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C012	SOR Section 070e	Seakeeping Analysis Report	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C013	SOR Section 070i	Dynamic Load Factors Report	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C014	SOR Section 070b	Register of Lifting Appliances	7 days after issue			A Register of Lifting Appliances for all lifting appliances and lifting gear shall be provided by ABS upon satisfactory proof testing after installation, and shall include certificates and reports.	

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C015	SOR Section 073b	Airborne Noise Analysis Report	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C016	SOR Section 073d	Hull Vibration Analysis Report	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C017	SOR Section 073d	Shaft Vibration Analysis Report	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C018	SOR Section 073c	Sonar Noise Analysis Report	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C019	SOR Section 079	Subdivision Analysis	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C020	SOR Section 079	Intact Stability Analysis	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C021	SOR Section 079	Damage Stability Analysis	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C022	SOR Section 079	Trim and Stability Computer Program	before AT			A Trim and Stability Computer program specific to this ship shall be provided on 90 mm (3.5 inch) diskette or CD-ROM, to permit determining and evaluating trim and stability with known loads at observed draft mark readings. The program shall include centers in three planes and shall be accurate throughout the range of expected trim. The program shall include the ability to determine the effects of localized superstructure icing as well as miscellaneous deck loads, permit the entry of soundings and capacities, present a graphical representation of loading, and provide loading printouts. The program shall be consistent in all respects to the ABS/USCG approved final Trim and Stability Booklet.	

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C023	SOR Section 079, SOR Section 097	Trim and Stability Booklet	30 Days after inclining experiment			The Contractor shall prepare a Trim and Stability Booklet using data from the inclining experiment. The submittal include the following and as required by regulatory bodies: a. A list of revision numbers, revision dates, and general supporting data that shall be maintained on the cover sheet. b. Loading conditions in Section 079b shall be calculated using the inclining data to include at least the following: 1. Departure. 2. A mid voyage condition where ballasting is necessary to maintain required load waterline and metacentric height (GM). 3. Arrival, ballasted, if necessary, to maintain required metacentric height (GM). 4. Additional conditions describing unusual or more critical loading conditions, if any. c. Operating instructions. d. Tank capacity data. e. The curve of required GM. Final corrections shall be made such that all work accomplished after the inclining experiment is reflected in the calculations. The appearance of the booklet shall be consistent throughout.	
C024	SOR Section 081a	Equipment Removal Routes Plan	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	

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C025	SOR Section 081b	Maintenance Plan	per drawing schedule			A maintenance plan shall be prepared and shall include sections for planned maintenance and predictive maintenance. In addition to regulatory requirements, the maintenance plan shall address the following areas: a. List of equipment/systems covered. b. Schedules for maintenance actions as described in the technical manual. c. Procedures to be performed as described in the technical manual. d. Materials and tools required to perform maintenance as specified in the technical manual. e. List of lube oil sampling point locations. The maintenance plan shall meet ABS requirements for implementation of AMS continuous surveys.	CD, HC
C026	SOR Section 085	Construction Drawings	per drawing schedule			Drawings shall be prepared for the design and construction of the ship. Drawings shall make reference to and be consistent with other related drawings, technical manuals, and other technical documentation. The latest revision of each drawing shall accurately reflect the current status of changes. Identification of all revisions and modifications shall be incorporated on the drawings. If defects develop in machinery, systems or equipment during the guaranty period, and if corrections of such defects are determined to be the responsibility of the Contractor, and if the correction requires an engineering change, the final drawings shall be revised or new drawings shall be provided to show modifications made to correct such defects. General Arrangement drawings shall be updated (from contract design versions) and provided. The Booklet of General Drawings shall be prepared based on the final General Arrangement drawings. HVAC drawings shall include fans (with volumetric rate), dampers, controls, terminals, ducts, heaters, louvers, terminal deliveries (volumetric rate), and cooling coils.	

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						Direction of air flow shall be shown as appropriate. Electrical and electronic drawings shall show wiring runs in thick lines and structure (such as outlines of decks and bulkheads) in thin lines and shall show the spaces through which each wire run passes. Electrical drawings and diagrams shall contain material lists. Applicable cableway installation drawings shall be included in the list of references. Each drawing with symbols shall have a legend showing each symbol used and its name or descriptive identification. For power and lighting drawings, symbol numbers only may be used instead of the graphic symbols. Cable ends to be sealed shall be indicated on system cable diagrams. Equipment drawings shall be provided with the equipment technical manual, and be of sufficient detail to permit the disassembly, repair and reassembly of equipment when used in conjunction with equipment technical manuals. Equipment drawings shall be in the same units of measurement as those used for the fabrication of the equipment. Equipment drawings shall be identified by manufacturer's drawing number. **Construction Drawings.** - Construction drawings shall be prepared, and shall include arrangements, lines and offsets, electrical and electronics drawings, diagrams and supporting calculations. Construction drawings shall fully describe the construction of the ship. Supporting calculations and diagrams shall incorporate the following data as applicable: a. Working load, test load, assumptions as to manner of loading (live, dead, alternating), assumed friction, materials, maximum stresses in each part (compressive, tensile, shear, bearing, and torsional) developed by the working load, and the factor of safety in each part. b. Information regarding characteristics under dynamic loadings, where applicable. This shall include calculations for natural frequencies of vibration and for resistance to	

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						loading, together with pertinent data. Drawings that require Regulatory Body approval shall be provided after approval by the Regulatory Bodies. Calculations to support the drawings shall be included where applicable. Drawings and associated lists shall provide the design information necessary to enable a manufacturer of similar products to produce and maintain quality control of item(s) so that the resulting physical and performance characteristics duplicate those of the original design. The drawings shall reflect the end product and provide engineering data for logistic support. All parameters required to define each unit, assembly, part or material shall be presented on the applicable drawing including the following to define fabrication, acceptance, interface or installation: all necessary mechanical dimensions, electrical parameters, physical parameters and environmental conditions. Drawings and associated lists shall be identified with the contractor's CAGE code and contractor document numbers or with the NOAA CAGE code and a document number.	
C027	SOR Section 085	Tank Capacity Curves, Booklet of Tank Sounding Tables and Drawings.	per drawing schedule			Calculations for all curves shall be based on the assumption that the ship has zero trim and deductions shall be made for all obstructions, such as structure, piping, and fixed ballast within the tank. Vertical centers of gravity shall be referenced to the baseline. Longitudinal centers of gravity shall be referenced forward perpendicular to the same longitudinal references as used in the curves of form. Transverse centers of gravity shall be referenced to the centerline of the ship. For tanks that are completely symmetrical about the centerline of the ship, a note to this effect shall be added to the drawing. For tanks with sounding tubes installed, a true projection of the sounding tube shall be plotted on the tank capacity curve drawing. The fore-and-aft location of the tube shall be indicated. The scale shall show sounding above the	

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						point at which the sounding instrument hits the striker plate and shall be based on the sounding tube as actually installed. The scale shall have sufficient divisions and distance between each 10 centimeter mark to allow legible curve readings of the increments. For tanks sounded by petcocks instead of by sounding tubes, a scale showing height of each petcock above the bottom of the tank shall be substituted. Tank Capacity Curves shall include the following: a. Curve showing capacity in liters or cubic meters, as appropriate, for tank filled to any level, plotted against height above baseline. b. Curves showing vertical, longitudinal and transverse coordinates of the center of gravity of each tank for the tank filled to any level. These curves shall all be plotted against height above baseline. c. A curve showing the transverse moment of inertia of the free surface about its own neutral axis, for the tank filled to any level. This curve shall be plotted against height above baseline. d. Notes on the curves shall indicate the capacity of each tank when full (95% for fuel and lube oil tanks) and the tailpipe allowance. e. Notes shall indicate the heights of the low point and top of the tank above the baseline. f. Tankage diagram. The Booklet of Tank Sounding Tables shall include a title page, a summary page, and pages tabulating capacities, centers of gravity, and moments of inertia for each tank. The summary page shall include a tabulation for each type of liquid, showing individual tank and total capacity. For each tank fitted with a sounding tube, the sounding table shall consist of a page listing tank capacity in liters for each 10 centimeters of sounding. The heading of each page shall list the compartment number, type of liquid, and	

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						location of tank by frames. The following information shall be noted on each page: a. Sounding and capacity when the tank is full. b. Sounding and capacity when the tank is 95 percent full (fuel and lube oil tanks only). c. Amount of liquid remaining in each tank when the lowest point of suction has been reached. d. The total length of each sounding tube from the upper terminal to the striker plate. e. Height of the lowest point of the tank above the baseline. f. Height of the striker plate above the lowest point of the tank.	
C028	SOR Section 085	Lines and Offsets	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C029	SOR Section 085	Docking Drawing	per drawing schedule			The docking drawing shall be approved by ABS and incorporate actual dimensions taken from the ship before launching or while in drydock before delivery and shall include the following: a. A plan view of the ship and the blocking arrangement. b. Profile of the hull supported on keel blocks. c. Sections, as required, to illustrate the transverse blocking arrangement, especially in cases where high blocking is required and stability in dock is a consideration. d. Location of keel blocks in three docking positions. e. Location of side blocks in three docking positions. f. Location of bitts and chocks on both profile and plan views. g. Location of underwater appendages on both profile and plan views. h. Location of acoustic transducers and other	

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						scientific sensors. i. Frame spacing of ship on profile views. j. Indication of major transverse bulkheads on the profile view. k. Notes on the profile view in the vicinity of the rudders, canards, propellers and shafts, and other removable appendages, identifying the clearance required for their removal. l. Notes on the profile view specifying all discharge openings by service. m. Table of critical dimensions. n. Table of displacements and other properties for docking. o. Table of block bearing area and pressure. p. List of openings in the shell with locations. q. Table of offsets for side blocks and keel blocks as required. r. The design waterline, forward and aft perpendiculars and all draft marks and plimsoll marks. s. Any other information necessary in docking the ship.	
C030	SOR Section 085	Booklet of General Drawings	per drawing schedule			The Booklet of General Drawings shall be in booklet form for ready reference and shall be no smaller than 1:100 scale. Drawings shall contain information concerning access, general arrangement, fittings, outfit, auxiliaries, frame numbers, and compartment numbers and names. The booklet shall include the following: a. Cover or title page. b. Table of Contents. c. Compartment directory. d. Sheet of general dimensions and data, including: 1. Length, between perpendiculars. Length, overall. Breadth, extreme. 2. Navigational draft at full load condition	

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						with service life allowance, 3. List of boats, liferafts and davits. 4. Capacities of cranes, A-frame and other weight handling devices. 5. Full load and light ship condition displacements. 6. Mast dimensions 7. Type of power plant, power (kW) and trial speed. 8. Propeller characteristics. 9. Generating plant description. 10. Steering unit description. 11. Canard unit description. 12. Deck machinery description. 13. ABS equipment numeral. 14. Accommodations by type. 15. Gross tonnage. e. Outboard profile. Both sides and antennas shall be shown. Outboard profile drawings shall show underwater body and fittings in hidden lines, and shall indicate the heights of decks, platforms, masts, antennas, navigation lights and waterlines. The horizontal distance between masts shall be shown. f. Inboard profiles showing the locations of the forward and after perpendiculars and midship mark. Each of these locations shall be dimensioned to the nearest frame line. g. Decks (a drawing of each deck and platform). h. Inner bottom. i. Midship and typical sections, indicating scantlings and details of construction and molded heights of decks above baseline. j. Forward view. k. Aft view. l. Topside plan view showing exposed weather areas and including lights, rigging, antennas, deck and	

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						mission equipment, and other fixtures. Berths, food service and propulsion equipment and furniture shall be shown only as necessary for clear understanding, using straight-line outlines and labeling. Major items of machinery shall be numbered. The propellers shall be shown on outboard profile and appropriate deck drawing. Arrangement of furniture and equipment in living spaces, offices and similar spaces shall be shown. Berths shall be marked single or double. Furniture such as chairs and similar small articles need not be shown. The location, degree of tightness and fire resistance of each watertight and fire zone boundary shall be shown.	
C031	SOR Section 085	Machinery Arrangement Drawings	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	

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C032	SOR Section 085	Damage Control Diagrams	per drawing schedule			The following damage control diagrams shall be prepared: a. Flooding Effects Diagram. b. Liquid Loading Diagram. c. Subdivision Diagrams. d. Bilge, Ballast and Seawater Systems Diagram. e. Firemain and Fixed Firefighting Systems Diagram. f. Fuel Filling, Transfer and Overflow Systems Diagram. g. Ventilation Systems Diagram. Diagrams shall show overall system configuration as installed in the ship, control and monitoring device locations and similar features necessary for monitoring and directing effective onboard damage control and firefighting evolutions. Two sets of damage control diagrams, ANSI Y14.1 standard drawing size C or international paper size A2, shall be prepared. Each diagram shall be laminated on both sides with a rigid vinyl plastic cover and the front shall be a matte surface for marking with marking crayons (grease or wax) that are easily removed with a dry cloth without the crayon colors becoming imbedded in the plastic surface. Laminated diagrams shall have approximately 20 mm overlap around the edges.	
C033	SOR Section 085	Final Drawings	90 after SD			Final “as-built” drawings shall be provided.	
C034	SOR Section 085	Final Drawing Index	90 after SD			An index of final drawings shall be provided. The drawing index shall be a tabular listing sorted in alphanumeric sequence within WBS element. The index shall reflect “as built” Ship Construction Drawings. A cover sheet shall accompany the index. The index shall include drawing name, number, computer file name, type (construction, final), drawing size, number of sheets, revision and revision date.	

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C035	SOR Section 092	Ship Acceptance Program Plan	180 DAO4	Yes	30	The Contractor shall provide a ship acceptance program plan that documents how the requirements of the SOR are to be met. Test documentation shall include an identifying number for each test. The test numbering system shall enable rapid location of individual tests, and shall have traceability to the WBS section for which the tests will be conducted. The same number shall be assigned to test documentation and test data associated with a particular test. Joint test documentation may be used for approval and witnessing of tests simultaneously by the Government and the Regulatory Bodies where appropriate. The Ship Acceptance Program Plan shall provide a complete description of the test and trials program to be implemented. The plan shall contain sections for: a. Introduction and Summary b. Approach c. Test and Trials Organization d. Milestones e. Documentation development and control f. Test and Trials Conduct g. Trials corrective actions process h. Test and Trials Equipment i. Support Requirements j. Reporting The use of Flow Diagrams is encouraged to show the functional description of the acceptance program by using block diagram portrayal of the functions that shall be met to satisfy the total acceptance program.	

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C036	SOR Section 092	Test Schedule	90 days before test			A Test Schedule shall be provided and include a complete listing of each test to be performed, and shall provide dates for the conduct of each test. The Contractor shall notify the regulatory bodies and the Government of all planned test events. The schedule shall include the time and meeting location for each test. If a test has been scheduled and is subsequently canceled or deferred for any reason, the regulatory bodies and the Government shall be notified as soon as possible, but in no case less than one hour before the scheduled start of the test. The Test Schedule shall include; test commencement and completion dates, ordering of prerequisite test and event items, and test program problem areas. The Test Schedule shall be comprised of three basic subdivisions: a. The title/cover page b. A Test Schedule Listing, which shall be a tabular listing by test number and as a minimum shall include the following columns: 1. Test number 2. Test title 3. Test procedure revision letter 4. Scheduled test start date 5. Schedule test completion date 6. Actual test start date 7. Actual test completion date	

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C037	SOR Section 092	Test Procedures	90 days before test	Yes	30	Test procedures shall be prepared for each test. Test procedures shall contain adequate safety precautions and procedures to ensure personnel and material are not subjected to undue hazards. Test procedures shall provide the detailed description of the operations to be performed and the parameters to be met during the conduct of each test. Each test procedure shall contain data sheets suitable for recording the quantitative values determined during the conduct of the tests. Each data sheet shall show specified values and tolerance limits for each measured value, a Test Conductor signature, a Regulatory body and a Government witness signature and test date. Block diagrams, simplified schematics or diagrammatics may be used to clarify the procedure or simplify the test method. Comment sheets shall be included to record significant events and observations that occur during conduct of the test. The test procedure may be modified at the time of the test, if approved by the Regulatory body and the Government.	
C038	SOR Section 092	Test Reports	30 days after test			The Contractor shall prepare a test report for each test conducted. The test reports shall consist of the test procedure with completed data recording sheets. Test data shall include any marked-up pages of the test procedure, all completed data sheets, comment sheets, and all supporting data such as computer printouts, strip charts, oscilloscope recordings, electronic media, and photographs. Calibration results shall be provided for systems and equipment with such requirements. Test data that is not an integral part of the test procedures shall be annotated with the test number, hull number, date and any other pertinent information. The signing of any data sheet by the Government signifies only that the test was conducted in accordance with the approved test procedure and that test data was accurately recorded. The Contractor shall retain the master copy of each test	

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						procedure by which a test was conducted and on which the test results were recorded. The Contractor shall retain the originals of test data. These records shall be turned over to the Government at ship delivery.	
C039	SOR Section 094	Trial/Survey Schedule	90 days before test			A Trial/Survey Schedule shall be prepared and include a complete listing of each trial and survey to be required by Section 094, and shall provide dates for the conduct of each trial and survey.	
C040	SOR Section 094	Notification of Trials	60 days in advance of the proposed trial or survey date and confirm the dates for trials at least 14 days before each scheduled date			At least 60 days in advance of the proposed trial or survey date, the Contractor shall notify the Government of the proposed date for trial or survey, provide the agenda, and identify any special Government services required for the trial. The Contractor shall confirm the dates for trials at least 14 days before each scheduled date.	
C041	SOR Section 094	Trial Agenda	60 days prior to trial	Yes	30	A Trial Agenda shall be prepared to present the Contractor's plan for conducting the required trial or survey and describe the procedure for documenting the results of tests, inspections, operations, and Mission Trials. The Trial Agenda shall cover in detail the proposed procedures to be followed, the data to be collected and the trial displacement. An appendix to the agenda shall include arrangements for measuring fluids, location of gauges, thermometers and all special instrumentation.	

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C042	SOR Section 094	Trial Report	30 days after trial			The trial report documents the results of tests, inspections, and operations conducted during Trials. The trial report shall be prepared for each trial or survey and shall consist of the following information: cover, title page, table of contents, introduction and summary, trial agenda, and appendix (if required). The narrative summary shall include trial conditions, conduct, and results including ship displacement, drafts and trim, kind of underwater paint and days out of drydock since last complete underwater painting, and list of underwater appendages not installed at time of trial. The trial agenda shall be filled in with all the test and events results included. A list of uncompleted tests and reason for not completing shall be included.	
C043	SOR Section 094b	Airborne Noise Survey Report	30 days after trial			The Airborne Noise Survey Report shall include the following information: a. Compartments and deck stations that were measured, including specific positions of measurement locations in each space and at each station. b. The assigned noise performance criteria for each location. c. The noise levels measured at each location, with a comparison to the noise performance criteria. d. Ship operating conditions for each measurement. e. Annotation of special or unusual conditions applying to each measurement, as necessary. f. Any noise deficiencies detected. g. The approach by which the Contractor will correct noise deficiencies.	

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C044	SOR Section 094c	Vibration Survey Report	30 days after trial			The Vibration Survey shall include: a. Specific positions of measurement locations. b. The vibration levels measured at each location, including a comparison to the vibration performance criteria. c. Ship operating conditions for each measurement. d. Annotation of special or unusual conditions applying to each measurement. e. Any vibration deficiencies detected and the approach by which the Contractor will correct vibration deficiencies.	
C045	SOR Section 096	Bimonthly Weight Report (BWR)	60 DAO4 and at 60 day intervals thereafter	Yes	30	A detailed weight estimate in the Three-Digit System incorporating design development and actual weighings during the detail design and construction phase. The BWR shall document the current mass properties status of the detail desgin and construction design effort. The light ship, full load, and light operating conditions shall reflect the ship that is projected for delivery, including the current mass properties values for GFM and margins. The ship's displacement, KG, list, and trim shall be compared to the design values for displacement, KG limits and the specified allowable ranges for list and trim. The shall address any deviations for the Contractor Responsible Condition from the approved Final CDWE values. Report details shall indicate whether the information shown is estimated, calculated, or weighed.	
C046	SOR Section 096	Final Weight Report (FWR)	30 days after inclining experiment	Yes	30	The FWR shall be prepared. The FWR shall reflect the final status of the ship design and construction effort that resulted in a delivered product and is based on the inclining experiment. All of the reporting requirements of a BWR also apply to the FWR. The light ship condition in the reported light ship shall be adjusted to correlate with inclining experiment data. Detail Design and Building Margin is used to account for irreconcilable differences between the FWR and the inclining experiment.	

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C047	SOR Section 097	Inclining Experiment Procedure	2 weeks prior to inclining experiment date			At least two weeks before the inclining experiment the Contractor shall provide and submit the inclining experiment procedure (in accordance with the requirements of ASTM F1321) to the Regulatory Bodies and to the Government.	
C048	SOR Section 097	Inclining Experiment Report	One week after inclining experiment date			A report describing the inclining experiment shall be provided in accordance with the requirements of ASTM F1321. The report shall be submitted to the Regulatory Bodies and to the Government for approval not later than one week after the date of the inclining experiment.	
C049	SOR Section 099	Photographs	10 days after photographs are taken			A set of photographs shall be provided to the Government. Color photographs shall be provided, and will become the property of the Government with no restrictions. Digital photography shall have a minimum resolution of 3.2 megapixels. Each photograph shall be dated and identified as to location and view portrayed. Identification photographs shall be taken before the ship departs the Contractor's facility for delivery to NOAA. Inclining experiment photographs of the draft readings forward and aft, and the topside arrangements for inclining weight handling and measurement shall be taken at the time of the inclining experiment.	HC
C050	SOR Section 070, SOR Section 100	Structural Design Calculations	per drawing schedule			Structural design calculations shall be provided to the Government and submitted as necessary to ABS for class approval in accordance with the SOR.	
C051	SOR Section 184	Navigational System Alignment report	15 days after system alignment			A Navigational System Alignment report shall be provided for mission and ship's equipment, containing descriptions of methods used, instrument type, instrument error, serial number and calibration date, copy of field measurements and notes, calculations, closing angle error analysis, linear error measurement analysis and drawings to scale showing angular and linear relationship of each point established.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
C052	SOR Section 200	SSV-related technical documentation	per drawing schedule			If an Integrated Diesel Electric power plant is provided, the following SSV-related technical documentation shall be provided: a. Correspondence with Regulatory Bodies. b. System harmonic analysis. c. Subtransient reactance calculations. d. Regenerative analysis. e. Machinery Control System Programmable Logic Controller (PLC) locations. f. Factory acceptance test schedule, status, procedures and reports. g. System design schedule.	
C053	SOR Section 243	Shaft Alignment Analysis	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	CD
C054	SOR Section 300	Electric Power Load Analysis (EPLA)	per drawing schedule	Yes	30	Update of Contract Design Phase Deliverable as required by design development.	
C055	SOR Section 330	Photometric Survey Report	30 days after survey			A Photometric Survey Report shall be provided.	
C056	SOR Section 491	Government Mission Electronics Equipment Interface Control Documentation	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C057	SOR Section 491	Arrangement of Mission Electronics and Transducers	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C058	SOR Section 512	HVAC Calculations	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
C059	SOR Section 591	Arrangement of Mission Outfit Equipment and Rigging	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C060	SOR Section 591	Government Mission Outfit Equipment Interface Control Documentation	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	
C061	SOR Section 600	Color Coordination Manual	per drawing schedule	Yes	30	Update of Contract Design Phase Deliverable as required by design development.	
C062	SOR Section 603b	Draft Mark Survey Report	30 days prior to launch			A Draft Mark Survey Report shall be prepared, documenting the as-built location of all draft marks and hull markings.	
C063	SOR Section 604d	Key Tags and Index Book	per drawing schedule			A key tag index book, in 3-ring binder format, shall be prepared, identifying the key tag number, the key serial number, and the compartment or item secured by the key.	
C064	SOR Section 611b	Hull Fittings Test Report	30 days after test			A Hull Fitting Test Report shall be provided, documenting load testing of each padeye.	
C065	SOR Section 631	Paint Schedule	per drawing schedule			Update of Contract Design Phase Deliverable as required by design development.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
C066	SOR Section 631	Paint Report	7 days after application			The Contractor shall prepare a paint report that includes the Atmospheric Condition Measurements, Surface Preparation Readings, DFT Readings and Paint Manufacturer Service Reports. a. **Atmospheric Condition Measurements.** - Atmospheric condition measurements shall provide a quality control checkpoint for the environmental conditions at the time coating systems are being applied. The measurements shall include the following: location, surfaces or structure being painted; the person taking the readings; the inspector; dry bulb temperature; wet bulb temperature; and relative humidity. The report shall indicate any special precautions employed to control the painting environment. b. **Surface Preparation Readings.** - Surface Preparation Readings shall document surface preparation achieved in preparation for painting, and shall include the following: the location, surfaces or structure being painted; the person taking the readings; the inspector; the means used to obtain the standard of cleanliness; and the texture standard achieved. c. **Dry Film Thickness (DFT) Readings.** - DFT readings shall be documented for each layer of cured paint, and shall include the following: location, surfaces or structures painted; the person taking the readings; the measurement tool; tool calibration; the inspector; and the dry film thickness of a representative average of the surface coated. d. **Paint Manufacturer's Service Reports.** - The Contractor shall provide copies of all reports made by the paint manufacturers' representatives made to the shipyard.	
C067	Section C	Configuration Management Plan	30 DAO4	Yes	30	Update of Contract Design Phase Deliverable as required by design development.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
C068	Section C	Engineering Change Proposal (ECP)	as required	Yes	45	ECPs shall contain a detailed description of the scope of work, plans and sketches show the before and after configurations, list of materials added or deleted, cost estimate, ILS impact, estimate of the effect on weight and moment. and/or estimate of effects on delivery schedule.	
C069	Section C	Request for Deviation (RFD)	as required	Yes	20	Deviations are written authorizations to depart from a particular performance or design requirement for a specific number of units or period of time.	
C070	Section C	Request for Waiver (RFW)	as required	Yes	20	Waivers are written authorizations accepting a configuration item or other designated item which, during production or after having been submitted for inspection, is found to depart from the specified requirements, but nevertheless is considered suitable for use “as-is”.	
C071	Section C	Contract Problem Identification Report (CPIR)	as required	Yes	45	This is a report used by the Contractor for the purpose of alerting the Government to actual or potential contract problems and of establishing an early dialogue between the Contractor and the Government with regard thereto.	
C072	Section C	History of Equipment Usage	Quarterly after first use			The Contractor shall provide to the Government a history of usage, material condition and maintenance of equipment that the Contractor has provided and installed on the vessel. This history shall document all usage, maintenance performed on the equipment, both corrective and preventative, indicating problems and solutions or corrections made. This history shall also include date of usage, maintenance, running hours, date and type of reconditioning or overhaul, date of receivership, name plate and configuration data, and whether such usage or age has so deteriorated the equipment as to impair its usefulness or safety.	
C073	Section C (C-6)	Facility Certification Report or Alternate Drydocking / Launching Method	90 DAO4			The contractor shall provide a report including copies of facility certifications for the facilities that will be used for drydocking / launching the vessel.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
C074	Section C	Grounding / Damage / Collision Report	Verbal 24 hours, written 5 days after incident			The contractor shall report on any grounding, damage or collisions, verbally and in writing for each incident. The report shall include reasons for occurrence, damage sustained, and effects on the vessel's delivery schedule.	
C075	Section C	Adverse Environmental Conditions Plan	60 DAO4	Yes	30	The plan shall describe the preparations, sequencing, and disposition of the ship and the materials and equipment to be installed therein, for heavy weather and hurricanes. This plan shall include the controls, responsibilities, interfaces, procedures, schedules and resources necessary to implement the plan. The plan shall include, but not be limited to, alarms, and telephones; evacuation, additional moorings, and watch bills, and pertinent instructions outlining the required precautions and actions regarding heavy weather and hurricanes.	
C076	Section H	Progressing System Description	60 DAO4, monthly thereafter	Yes	30	A certified description of the progress made for purposes of progress payment shall be provided.	

Notes:

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DAO4 is calendar days after CLIN 0004 option exercise.
AT is Acceptance Trial.
SD is ship Delivery.
HC is Hard Copy, two paper deliverables are required.
CD is CD ROM Deliverable.

Note 1: Copies of correspondence, with attachments, shall be directly submitted from ABS to the Government.

EXHIBIT D – Logistics - Contract Data Requirements List

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
D001	SOR Section 080	Logistics Support Plan (LSP)	90 DAO4	Yes	30	A LSP shall be prepared documenting the Contractor's plan for gathering and analyzing data and for management, control, execution, and integration of maintenance planning, supply support, outfitting, technical manual development, familiarization training material and course development, configuration control, and drawings. The LSP shall describe methods to ensure timely integration of logistics support, engineering, design, and management efforts. In addition, the LSP shall address the master milestones planned and scheduled for the logistics effort and shall include a Logistics Milestone Chart showing events required to be accomplished to fulfill all logistics tasks keyed to construction program milestones. The LSP shall be reviewed at the Logistics Guidance Conference and status of logistic requirements updated and presented at quarterly meetings.	
D002	SOR Section 083	Outfitting Summary Statistics	per LSP, final at AT	Yes	30	The Contractor shall prepare a report showing the status of all ordered spare and repair parts.	
D003	SOR Section 083	Outfitting Operations Plan	180 DAO4	Yes	30	An Outfitting Operations Plan shall be prepared, describing procedures, controls and schedule for procurement and installation of outfitting items.	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
D004	SOR Section 083	Required Spare and Repair Parts List	per LSP			A list of spare and repair parts to include ABS, shore-based and onboard shall be prepared, and shall include the following data: a. Parent Equipment Name. b. Part Name. c. NSN (if available). d. Manufacturer's Name and Telephone Number. e. Manufacturer's Part Number. f. Quantity Onboard. g. Quantity Ashore. h. Unit of Issue. i. Quantity Unit Pack. j. Cost (current year). k. Vendor. l. Weight. m. 3-digit WBS.	
D005	SOR Section 083	Additional Spare and Repair Parts & Equipment List	per LSP	Yes	30	Individual equipment spare and repair parts lists shall be prepared and provided to the Government for selection and procurement authorization. The lists shall be prepared, and shall contain the following information: a. Parent Equipment Name b. Part Name c. Manufacturer's Name and Telephone Number. d. Manufacturer's part number and CAGE code. e. NSN (if available). f. Quantity recommended by the vendor. g. Cost (current year). h. Procurement lead time.	
D006	SOR Section 083	Consolidated Spare / Repair Parts Inventory List	per LSP, Final at SD	Yes	60	A consolidated spare and repair parts inventory list shall be prepared, and shall combine all spares and repair parts to be provided to the ship. The list shall be derived from the Required Spare and Repair Parts List and the Additional Spare and Repair Parts Lists (as authorized by the Government) and primarily sorted by the Parent Equipment Name and secondarily sorted by Part Number.	

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						This data will be used as the ship's master inventory and will also be used as data input to the Shipboard Automated Maintenance Management System (SAMMS). SAMMS is a computer-based shipboard planned maintenance system designed specifically to track, schedule, and maintain records of maintenance accomplished aboard ship. This system will be loaded onboard ship by the Government after ship delivery. The contractor shall provide input data prepared in accordance with the database structure identified below. The data shall be entered into the database in the exact format indicated below to allow for transfer to SAMMS database. Each row on the sheet should hold all the information for a given part. The 13 column headers to be used on the spreadsheet are as follows: a. **Equipment Name.** This is the parent equipment for the given part. Typically, all parts for a given equipment will be grouped together (e.g. NO.1 MAIN ENGINE) b. **Part Name.** The text description of the part (e.g. GAUGE, 0-160 PSI) c. **National Stock Number.** The Government assigned part number used for federal purchases (e.g. 6685-01-073-7588). This number should be provided if available. d. **Manufacturer.** The manufacturer for the part (e.g. DETROIT DIESEL) e. **Manufacturer's Part Number.** The part number assigned by the original equipment manufacturer used for purchases directly from the manufacturer. Vendor part numbers are not acceptable. f. **Quantity Onboard.** The quantity stored aboard the vessel. g. **Unit of Issue.** The two-character designator for the unit of issue (e.g. EA for each, BX	

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						for Box). h. **Quantity Unit Pack.** The minimum number that can be purchased. Typically, the number per box (e.g. 1 for gears or 20 for light bulbs). i. **Cost.** The current year price per Quantity Unit Pack (e.g. $10 for the 20 light bulbs). j. **Vendor.** Where to purchase the part (e.g. Seattle Pump and Equipment). k. **Compartment.** The room where the part is stored on the vessel (e.g. C-08). l. **Location.** The shelf or drawer in the compartment where the part is stored (e.g. Drawer 3). Count drawers or shelves from the entry back and from the top to the bottom. For instance, the top drawer in the chest of drawers closest to the entrance would be Drawer 1. The drawer directly under it would be Drawer 2 and so on. If the first chest of drawers had 6 drawers, the top drawer in the next chest of drawers would be Drawer 7. m. **Section.** The position within the shelf or drawer where the part is stored (e.g. 2). Count from left to right then front to back.	
D007	SOR Section 086	Technical Manual Organization Plan (TMOP)	90 DAO4	Yes	30	A Technical Manual Organization Plan (TMOP) shall be prepared. The plan shall include the following information: a. Listing of all technical manuals to be provided b. Source of supply (existing vendor part or Contractor developed) c. Delivery schedule	

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
D008	SOR Section 086	Technical Manual Status Report	quarterly			A Technical Manual Status Report (TMSR) shall be prepared. The report shall include the following information for each manual: a. Technical Manual Identification Number b. Title of Manual c. Percentage of completion at the time of report d. Scheduled milestone dates (In-Process Reviews, Validations etc.) e. Drawing Status f. Parts List Status g. Comments if necessary	
D009	SOR Section 086	Technical Manuals	per TMOP	Yes	45	Technical Manuals shall be provided.	CD, HC
D010	SOR Section 086	Engineer's Operating Manual	per TMOP	Yes	45	The Contractor shall prepare an Engineer's Operating Manual (EOM), which describes all machinery and machinery control systems.	CD, HC

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EXHIBIT E – Training - Contract Data Requirements List

Document Number	Reference	Document Title	Date Due	Approval Required	Review Period	Data Description	Notes
E001	Contract Section C	Crew Familiarization, Operation and Maintenance Program Plan	90 DAO4	Yes	30	The Contractor shall provide a plan that shall address schedule, location, instructional materials and instructors. The plan shall include an instruction syllabus for each topic	
E002	Contract Section C	Instructor Lesson Plan	per schedule	Yes	30	Instructor Lesson Plans shall be provided and shall include a lecture outline, demonstration and/or question and answer formats (or any combination)	
E003	Contract Section C	Student Guides	per schedule	Yes	30	Student guides for the full set of lessons shall be provided. These shall include text and illustrations covering the content of each lesson.	

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